

Notice of Allowability

Application No.

09/746,978

Examiner

Ted T. Vo

Applicant(s)

RENARD ET AL.

Art Unit

2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/01/04.
2. ☒ The allowed claim(s) is/are 1-5 and 20-35.
3. ☒ The drawings filed on 21 December 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Art Unit: 2122

1. The amendment filed on 7/01/04 has been considered.

The amendment to Claims 1-5, 20-35, and the arguments given in Remarks section (pages 6-9) are persuasive and overcome the rejections that were previously applied to the closest arts of record, Stoodley, "Software Pipelining Loops With Conditional Branches", Albert et al., "Data Parallel Computers and the FORALL Statement".

Reasons for Allowance

2. Claims 1-5 and 20-35 are allowed.

Prior art of record, Stoodley, discloses software pipelining that provides an execution to a VLIW instruction containing addresses of at least two different iteration paths, where each iteration path jumps to a different instruction.

Prior art of record, Albert et al., discloses a single FORALL Statement at high level programming language, where the FORALL Statement includes at least two different loops that have at least different start addresses or different end addresses.

However, as pointed out by Applicants, in regard to the newly amended limitation of Claim 1 *"wherein the at least two different loops have at least one of different start addresses or different end addresses"* (remarks: page 7, lines 1-2), that the Stoodley's different iterations are simply of a same loop (remarks: page 7, line 1), and as pointed out by Applicant to the view of Albert, the teaching of FORALL instructions, that VLIW instruction which provides multiple iteration paths is irrelevant to a single instruction (remarks: page 7, line 14) and the FORALL instructions when compiled, would not result in a single instruction (remarks: page 7, line 17).

Furthermore, as pointed out by Applicants, in regard to the newly amended limitation of Claim 20 *"wherein the first loop and the second loop have at least one of different start addresses or different end addresses"*, that Stoodley describes multiple iteration paths of a single loops but makes no mention of a single instruction providing information to initialize loop storage elements corresponding to both a first

Art Unit: 2122

loop and a second loop (remarks: page 8, at lines 7-10 in section Rejection of Claims 20-28 under 35 U.S.C. 103).

Therefore, the following is an examiner's statement of reasons for allowance:

The cited prior arts taken alone or in combination fail to teach the claims to a processor and a method of performing an instruction comprising at least features:

an instruction fetching mechanism that retrieves the set of instructions to be executed by the execution unit, at least one of the set of instructions comprising a single instruction that provides information corresponding to at least two different loops, wherein the at least two different loops have at least one of different start addresses or different end addresses",

as recited in such manners in independent Claim 1,

and so as:

"decoding the single instruction; and

in response to decoding the single instruction, using information provided by the single instruction to initialize a plurality of loop storage elements corresponding to the first loop and the second loop, wherein the first loop and the second loop have at least one of different start addresses or different end addresses",

as recited in such manners in independent Claim 20.

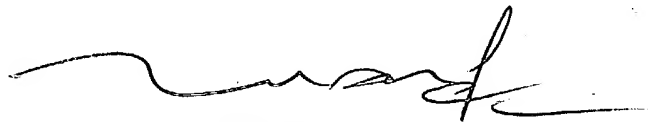
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted T. Vo whose telephone number is (703) 308-9049. The examiner can normally be reached on 8:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

After October 25, 2004, examiner can be reached at new telephone number (571) 272-3706 and the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3694.

Art Unit: 2122

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TUAN DAM
SUPERVISORY PATENT EXAMINER

TTV
Patent Examiner
Art Unit 2122
September 30, 2004